

**Kurt Reiser**

Research Project Manager  
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**Desired**

Continue developing expertise in information fusion and/or image processing. Innovative applications of fusion include intelligent text filtering, automatic construction of fused classifiers, expert systems, and financial analysis. Extensive experience in automated learning and inspection can be applied to quality control, surveillance or target recognition.

**Education**

Ph.D. (Computer Science), University of Southern California, 1991;  
 M.S. (Computer Science), University of Southern California, 1987;  
 B.S. (Computer Science), University of Illinois at Urbana, 1984.

**Skills**

Problem Solving, Technical Development, Proposal Preparation, Marketing

**Experience**

*MultiSensor Data Fusion (1993-1999):* managing projects developing multisensor fusion architectures for ballistic missile defense and ATR. *Invented supervised and unsupervised learning techniques to train evidential reasoning systems.*

*3D Object Recognition (1989-1995):* designed and implemented systems that learn to recognize 3D objects from multiple views. Applications include Automatic Target Recognition.

*Road Condition Sensing (1992):* managed project; participated in experimental design; collected, processed, and analyzed data during development of a microwave-based road condition sensor. Ongoing applications include aircraft wing ice sensing.

*Character Recognition (1991-1992):* constructed attributed graph-based and vector quantizer systems capable of 97% recognition rates. Results are being incorporated into a contract-supported hybrid system.

*Inspection Systems (1988-1991):* developed and patented a surface reconstruction system for inspection of surface-mounted solder joints. 2D and 3D processing included edge detection and grouping, shape from shading, and surface characterization.

*Range Image Analysis (1987-1988):* participated in development of range image processing techniques that, in part, lead to the world's first map and sensor-based cross country traversal by a robotic vehicle.

**Honors**

First Recipient of the *HRL Outstanding Initiative Award*, 1989.  
 Holder of first patent issued to the Hughes Artificial Intelligence Center.  
 Hughes Doctoral Fellow, 1988; Hughes Master's Fellow, 1986.

**Publications**

13 papers and patents in the areas of machine perception, signal processing and artificial intelligence. More in preparation.

**Clearance s**

Secret, SCI

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**Patents**

"Surface Condition Sensing System", K. Reiser, S. Harmon, and J. Butler,  
U.S. Patent 5,497,100: March 5, 1996.

"Matching Technique for Context Sensitive Rule Application", C. Dolan, D.  
Keirseey and K. Reiser, U.S. Patent 5,317,677: May 31, 1994.

"Method and Apparatus for Inspection of Solder Joints Utilizing Shape  
Determination from Shading", K. Reiser, U.S. patent 5,064,291: Nov. 12,  
1991.

**Dissertation**

Reiser, K., "Learning Persistent Structure", University of Southern California  
Department of Computer Science, August, 1991.

**Invited Papers**

von der Malsburg, C. and K. Reiser, "Pose Invariant Object Recognition in a  
Neural System," Proceedings of the International Joint Conference on Neural  
Networks, Paris, October, 1995.

Daily, M., J. Harris, and K. Reiser, "An Operational Perception System for  
Cross-Country Navigation," Proceedings of the Image Understanding  
Workshop, Boston, MA, April, 1988.

Olin, K.E., M.J. Daily, J.G. Harris, and K. Reiser, "Knowledge-Based Vision  
Technology Progress at Hughes AI Center", Proceedings of the Image  
Understanding Workshop, Boston, MA, April, 1988.

Olin, K.E., F.M. Vilnrotter, M.J. Daily, and K. Reiser, "Developments in  
Knowledge-based Vision for Obstacle Detection and Avoidance", Proceedings  
of the DARPA Image Understanding Workshop, L.A., California, 1987.

Daily, M.J., J.G. Harris, and K. Reiser, "Detecting Obstacles in Range  
Imagery", Proceedings of the DARPA Image Understanding Workshop, L.A.,  
California, 1987.

**Papers**

Reiser, K. and Y. Chen, "Supervised and Unsupervised Learning in Dempster-  
Shafer Systems", Submitted to the Journal of Approximate Reasoning, 1995.

Reiser, K., "Vector Quantization for Recognition of Hand Written Numerals",  
27th Asilomar Conference on Signals, Systems and Computers, Pacific Grove,  
California, 1993.

Daily, M., J. Harris, and K. Reiser, "An Operational Perception System for  
Cross-Country Navigation", IEEE Conference on Computer Vision and Pattern  
Recognition, Ann Arbor, Michigan, 1988.

Daily, M., J. Harris, D. Keirseey, K. Olin, D. Payton, K. Reiser, J. Rosenblatt,  
D. Tseng, and V. Wong, "Autonomous Cross-Country Navigation with the  
ALV", Proceedings of the IEEE International Conference on Robotics and  
Automation, Philadelphia, Pennsylvania, 1988; also in Proceedings of the  
DARPA Knowledge-Based Planning Workshop, Austin, Texas, 1987.